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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/549,464	04/14/2000	CLAIR J. BRANCH-SULLIVAN	UOM0186PUS	6143

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EXAMINER

HARRINGTON, ALICIA M

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 08/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/549,464

Applicant(s)

MCGREGOR ET AL.

Examiner

Alicia M Harrington

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 31-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 24 May 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION***Information Disclosure Statement***

In view of applicant's statement that Knoll, G.F (1993) and Rocheleau et al (1991) on page 3 of Amendment A are prior art, the information disclosure statement filed on 1/19/01 is still partially considered and the IDS filed on 2/5/01 has now been fully considered. The new information disclosure statement filed on 5/24/02 has been fully considered.

Applicant also stated that the article entitled Geometrically Weighted Semiconductor Frish Grid Radiation Spectrometers is not prior art. Thus, the Examiner will not considered this reference.

Drawings

The corrected or substitute drawing was received on 5/24/02. This proposed drawing correction is acceptable to the Examiner.

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program

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listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or

REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)

(e) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(f) BRIEF SUMMARY OF THE INVENTION.

(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(h) DETAILED DESCRIPTION OF THE INVENTION.

(i) CLAIM OR CLAIMS (commencing on a separate sheet).

(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The disclosure is objected to because of the following informalities: As detailed above, the Background of the invention is section to discuss prior art. Since applicant has disclosed the article "Geometrically Weighted Semiconductor Frish Grid Radiation Spectrometers" is not prior art, the reference to its information should be removed from the specification under Background of invention at page 5.

Appropriate correction is required.

Election/Restrictions

Applicant's election of claims 1-30 in Paper No. 7 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 102

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,3-5, 7, 9-11,13, 14, 17, 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Tumer (US 5,557,108).

Regarding claims 1 and 7, Tumer discloses integrated substance detection and identification system the system detects optically invisible radiation (gamma, neutron and x-ray) within an environment to obtains data that is processed to obtain stereoscopic data (see abstract; figures 6-7; col. 1, lines 63-67; col. 2, lines 1-3 and 9-17 and 24-25). The system provides a display for a 3D view of the radiation by utilizing natural human stereo imaging processes where the radiation is displayed as optically visible data (col. 8, lines 25-34) superimposed on a view of the environment (for example: a view of the articles in the luggage in the transport system). Further, 3-D/stereoscopic imaging systems are based on human's stereo capabilities. Essentially, two images of the same scene at different angles/distances are fused/combined to provide a 3-D/stereoscopic view of an object(s). One or more imaging units taking pictures of the same scene that are fused/combined do the stereo imaging. Thus, the stereo systems are capable of providing a 3-D view of the radiation by utilizing natural human stereo imaging process.

Regarding claims 3 and 9, the transport system is an optically visible environment.

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Regarding claims 4-5 and 10-11, the radiation is ionizing radiation. Tumer discloses that a specific type of scintillation crystal is used in the detectors (see col. 6, lines 10-14) system.

Regarding claims 13-14, Tumer disclose the detector can be a linear array (a set of point) or an area detector (col. 7, lines 23-32) dependent upon whether the container to be examined is moving during examination (different embodiments use different types of sensor).

Regarding claim 17, Tumer discloses an embodiment with multiple gamma radiation detectors (see col. 2, lines 15-20).

Regarding claim 26, Tumer's detector is in a stereoscopic system.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tumer, as applied above to claims 1 and 7 respectively.

Regarding claims 2 and 8, Tumer disclose a system where the environment is optically real. However, the Examiner takes official notice that system exists where stereoscopic/3D data is viewed in a virtual environment. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a virtual environment can have a stereoscopic/three dimensional image overlaid in it, especially when the purpose is to simulate

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the real world, and actual real- time world data is not critical to the user (for example: training programs).

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tumer, as applied above to claim 7.

Regarding claims 15-16, Tumer fails to specifically disclose whether the detector subsystem is active or passive. However, Tumer discloses the claimed invention with the exception of this feature, thus, it appears the invention would work equally as well with an active or passive detector, therefore active or passive detection lacks criticality since Tumer provides the claimed function.

Claims 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tumer, as applied above to claim 7, further in view of Jeanguillaume (US 5,448,073).

Regarding claim 19, the radiation is ionizing radiation. Tumer discloses that a specific type of scintillator crystals is used in the detectors (see col. 6, lines 10-14) system. However, Tumer fails to specifically disclose the detector use collimators. Although, collimators in ionizing radiation system are well known as taught by Jeanguillaume.

In related field of endeavor, Jeanguillaume disclose a way to direct radiation to a curved scintillator crystal via a collimator. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a collimator in the system of Tumer, since it directs incident radiation into the scintillator and provides a better resolution image as taught by Jeanguillaume.

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Regarding claim 20, see Examiner's notes in claim 19. Tumer further fails to specifically disclose the scintillator is curved. However, curved scintillator/detectors are well known in the art of gamma radiation, as taught by Jeanguillaume. Thus, it would have been further obvious to one of ordinary skill in the art at the time the invention was made to implement a gamma detection system with a curved scintillator, since it is well known scintillator /detector construction and provide quality resolution radiation images.

Regarding claims 21-22, Tumer disclose the detectors are linear array of individual detectors (col. 7, lines 23-26). And Jeanguillaume discloses the detector is a group of photo multiplier tube (see figure 11; col. 11, lines 47-65). Further, Jeanguillaume uses the group of photo multiplier tubes as a single moving detector to provide three dimensional good resolution images. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a compound eye detector provide a good resolution image signal.

Regarding claim 23-24, see Examiner's notes in claim 22 and 21 respectively. Additionally, Tumer use multiple detectors to provide stereoscopic imaging. However, it well known in the art to using a single detector (group of photo multipliers) moving to provide 3D data, as taught by Jeanguillaume.

Jeanguillaume discloses the detector is moveable through angles to provide enough coordinate information (col.2, lines 5-35) to provide a 3D reconstruction of an image. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use single detector moveable in three dimension to detect enough coordinate data to construct 3D images, as taught by Jeanguillaume, since it provides a good resolution 3D image.

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Claims 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tumer, as applied above to claim 14, further in view of Jeanguillaume (US 5,448,073).

Regarding claim 25, Tumer use multiple detectors to provide stereoscopic imaging. However, it well known in the art to using a single detector (group of photo multipliers) moving to provide 3D data (map of the radiating emitting organ sources), as taught by Jeanguillaume.

Jeanguillaume discloses the detector is moveable through angles to provide enough coordinate information (col.2, lines 5-35) to provide a 3D reconstruction of an image. The coordinates (3D map) correspond to all detected emission from the organ of interest. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use single detector moveable in three dimension to detect enough coordinate data to construct 3D images, as taught by Jeanguillaume, since it also provides a good resolution 3D image.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tumer, as applied above to claim 17.

Regarding claim 18, Tumor fails to specifically disclose the gamma ray cameras are scanning camera and the camera are scanned through a plurality of angles to locate a source within the environment. However, the Examiner takes official notice that gamma ray scanning camera for taking images at plurality of angles to output three-dimensional images are notoriously well known in the art. These images identify detected radiation events of a source. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate scanning gamma ray cameras, since there usage in 3D imaging is well known to provide an quality output images on a display.

Claims 1,6,7,12, 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ball et al (US 5,534,694) in view of Manson (US 5,751,576).

Regarding claims 1 and 7, Ball discloses an infrared imaging system where the operator of plane where infrared image sensor provide images of the environment which are processed to provide visible images of the scene on a display (see col. 2, lines 1-20) viewable by an operator. The visible image is superimposed on the operator's direct view of the scene (col. 3, lines 50-62)-the natural human stereo view. However, Ball fails to specifically disclose the visible scene superimposed on the direct view of the viewer is a 3D/stereoscopic image superimposed. Although, it is well known in the art, as taught by Manson.

In a related field of endeavor, Manson discloses a system for transposing information from basic maps, environmental features, sensor signals, status information, or physical structures, to name a few, where the information is superimposed as a three dimension image onto the real world terrain (direct view of the viewer)- see abstract and col. 9, lines 11-21. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ball, as taught by Manson, to provide a direct intuitive comparison between two set of information without heavily relying upon intuitive perception in which an operator may lack, as taught by Manson (col. 5, lines 45-67 and col. 6, lines 1-3). Further, 3 -D/stereoscopic imaging systems are based on human's stereo capabilities. Essentially, two images of the same scene at different angles/distances are fused/combined to provide a #-D/stereoscopic view of an object(s). The stereo imaging is done by one or more imaging units taking pictures of the same scene that

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are fused/combined. Thus, the stereo systems are capable of providing a 3-D view of the radiation by utilizing natural human stereo imaging process.

Regarding claims 6 and 12, the radiation is infrared radiation (see Examiners notes in claim 1 and 7 respectively).

Regarding claim 27, Ball and Munson's detector system are attached to moving vehicles; thus, the detector subsystem is portable.

Regarding claim 28-29, Ball Munson discloses the system for use with a portable HUD display. However, it is notoriously well known in the art to incorporate stereoscopic viewing in HMD where the HMD includes a see through display and tracking system, official notice is taken to this fact. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Ball and Munson into a HMD environment, since it well known portable display, and it provides stereo and real scene viewing to the user.

Regarding claim 30, Ball and Munson provide real time visual feed to the drivers of the plane and tractor about the location. Further, Munson provide that other data feedback overlaid can be from numerous types of information (see col. 8, line 1+). Although, Ball Munson fail to specifically disclose showing the relative strength of the radiation-emitting source, Munson clearly supports providing numerous types of information to the user in the display. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that optically invisible radiation system could provide strength data of at least one radiation source to user and that such implementation as claimed lacks criticality; since Ball and Munson disclose the claimed invention with the exception of displaying a specified data type.

Response to Arguments

Applicant's arguments filed on 5/24/02 have been fully considered but they are not persuasive. Applicant's major argument is that Tumer, Jeanguillaume, Ball and Manson fail to provide teaching of optically visible images superimposed on a view of the environment so that a user can obtain a 3-D view of the radiation by utilizing natural human stereo image processing. However, the Examiner respectfully disagrees. 3-D/stereoscopic imaging systems are based on human's stereo capabilities. Essentially, two images of the same scene at different angles/distances are fused/combined to provide a 3-D/stereoscopic view of an object(s). The stereo imaging is done by one or more imaging units taking pictures of the same scene that are fused/combined. Thus, the stereo systems are capable of providing a 3-D view of the radiation by utilizing natural human stereo imaging process. Thus, the Examiner must respectfully disagree with applicant and the rejection will be repeated.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Russ, J.C.; The Image Processing Handbook, Second Edition; 1995 By CRC press.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M Harrington whose telephone number is 703 308 9295. The examiner can normally be reached on Monday - Thursday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 703 308 4883. The fax phone numbers for the organization where this application or proceeding is assigned are 703 308 7724 for regular communications and 703 308 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

Alicia M Harrington
Examiner
Art Unit 2873

AMH
August 6, 2002


Georgia Epps
Supervisory Patent Examiner
Technology Center 2800